Evaluating Substantial Impacts: Private Sector Entities

Purpose

To provide automated versions of the worksheets in EPA's *Interim Economic Guidance for Water Quality Standards* (1995) that are used to evaluate substantial impacts to private sector entities. If impact to an entity is determined to be substantial, subsequent analysis must be conducted to determine whether the impacts could have widespread social and economic consequences.

Explanation of Tabs

Name	Description	Requires User Input?
Inputs	All numerical inputs that user must enter to complete the worksheets, including project cost information and financial information of the discharger for which impacts are being analyzed.	Yes
Worksheets G - L	Equivalent to Worksheets G - L in EPA's *Interim Economic Guidance for Water Quality Standards* (1995)[1]	Yes, except Worksheet G
Summary	Summary of financial metrics used to evaluate substantial impact to entity	No
Example Inputs	Demonstrates how to fill in 'Inputs' sheet using a company's income statement and balance sheet	No
Example Financial Information	Contains financial information for Stillwater Mining Company, used to populate 'Example Inputs' sheet	No

Instructions for Use

1. Enter project and financial information on the 'Inputs' tab (cells in blue require user input). This information is automatically distributed to the appropriate worksheets.

2. On Worksheets H-L, answer questions and select checkboxes as directed (in cells highlighted in blue). Note that the open-ended questions on these sheets are for documentation purposes, while the selection of checkboxes indicates which year's value for a particular measure will be used for subsequent calculations.

3. Use the four financial measures (summarized in 'Summary' tab), along with answers to the questions provided by the user on the worksheets -- and any other information that may be relevant that is not included in the worksheets (as discussed in EPA's *Interim Economic Guidance for Water Quality Standards*) -- to assess whether adverse financial impact to the entity is substantial.

Note: All worksheets are sized to be printer-friendly.

Note: Tabs in blue require user input.

Comparison to Worksheets in EPA's 1995 *Interim Economic Guidance for Water Quality Standards*

The worksheets here mirror the worksheets in the guidance almost exactly, with the addition of automated calculations and transfer of values to other areas where the value is applied. The only substantive difference is that, while the *Guidance* vaguely asks the user to consider, for each metric, which year's value to use in the analysis, the worksheets here ask the user to definitively select which year's value is most appropriate. The selected value is then used where applicable in the remainder of the analysis.

1. Available at http://water.epa.gov/scitech/swguidance/standards/economics/

Company Name	*Mines Management Inc.*		
Project Information			
Capital costs to be financed	$301,000		
Interest rate for financing	7%		
Time period of financing (years)	10		
Annual cost of operation and maintenance (including but not limited to monitoring, inspection, permitting fees, waste disposal charges, repair, administration and replacement)*	$9,000		
Discharger Information			
Three most recently completed fiscal years (most recent first)	**2010**	**2009**	**2008**
Financial Information for Specified Fiscal Years			
Revenues	$16,839	$13,245	$18,108
Cost of goods sold (including the cost of materials, direct labor, indirect labor, rent and heat)	$0	$0	$0
Portion of corporate overhead assigned to the discharger (selling, general, administrative, interest, R&D expenses, and depreciation on common property)	$10,686,369	$9,393,232	$10,786,224
Current assets (the sum of inventories, prepaid expenses, and accounts receivable)	$6,594,956	$11,324,093	$22,139,292
Current liabilities (the sum of accounts payable, accrued expenses, taxes, and the current portion of long-term debt)	$2,699,595	$1,582,320	$2,435,104
Net income after taxes	-$10,669,530	-$9,379,987	-$10,768,116
Depreciation	$1,022,413	$1,022,902	$1,023,135
Current debt	$0	$0	$0
Long-term debt	$0	$0	$0
Long-term liabilities (long-term debt such as bonds, debentures, and bank debt, and all other noncurrent liabilities such as deferred income taxes)	$414,601	$394,899	$376,233

Owner equity (the difference between total assets and total liabilities, including contributed or paid in capital and retained earnings)	$12,625,002	$18,499,606	$26,922,547

* For recurring costs that occur less frequently than once a year, pro rate the cost over the relevant number of years (e.g., for pumps replaced once every three years, include one-third of the cost in each year).

Worksheet G

Calculation of Total Annualized Project Costs

Capital costs to be financed	$301,000	(1)
Interest rate for financing	7%	(i)
Time period of financing	10	(n)
Annualization factor = $i/((1+i)^n - 1) + i$	0.1424	(2)
Annualized capital cost [(1) × (2)]	$42,856	(3)
Annual cost of operation and maintenance (including but not limited to monitoring, inspection, permitting fees, waste disposal charges, repair, administration and replacement)*	$9,000	(4)
Total annual cost of pollution control project [(3) + (4)]	$52,000	(5)

* For recurring costs that occur less frequently than once a year, pro rate the cost over the relevant number of years (e.g., for pumps replaced once every three years, include one-third of the cost in each year).

Worksheet H

Calculation of Earnings Before Taxes With and Without Pollution Control Project Costs

A. Earnings Without Pollution Control Project Costs

EBT = R - CGS - CO

Where:	EBT =	Earnings before taxes
	R =	Revenues
	CGS =	Cost of goods sold (including the cost of materials, direct labor, indirect labor, rent and heat)
	CO =	Portion of corporate overhead assigned to the discharger (selling, general, administrative, interest, R&D expenses, and depreciation on common property)

	Three Most Recently Completed Fiscal Years			
	2010	2009	2008	
R	$16,839	$13,245	$18,108	(1)
CGS	$0	$0	$0	(2)
CO	$10,686,369	$9,393,232	$10,786,224	(3)
EBT [(1) - (2) - (3)]	-$10,669,530	-$9,379,987	-$10,768,116	(4)

Is the most recent year typical of the three years?	☑ Yes	☐ No	
If not, do you want to use an earlier year for the analysis?	☑ No, use 2010	☐ Yes, use 2009	☐ Yes, use 2008

Worksheet H, Continued

B. Earnings With Pollution Control Project Costs

EWPR = EBT - ACPR

Where:

EWPR =	Earnings with pollution control project costs
EBT =	Earnings before taxes (4)
ACPR =	Total annual costs of pollution control project [Worksheet G, (5)]

	2010	
EBT (4)	-$10,669,530	(5)
ACPR [Worksheet G, (5)]	$52,000	(6)
EWPR [(5) - (6)]	-$10,721,530	(7)

Considerations: Is the discharger expected to have positive earnings after paying the annual cost of pollution control?

No

Additional comments:

Worksheet I

Calculation of Profit Rates
With and Without Pollution Control Project Costs

A. Profit Rate Without Project Costs

PRT = EBT ÷ R

Where:	PRT =	Profit rate before taxes
	EBT =	Earnings before taxes
	R =	Revenues

	Three Most Recently Completed Fiscal Years			
	2010	2009	2008	
EBT [Worksheet H, (4)]	-$10,669,530	-$9,379,987	-$10,768,116	(1)
R [Worksheet H, (1)]	$16,839	$13,245	$18,108	(2)
PRT [(1)/(2)]	-633.62	-708.19	-594.66	(3)

Considerations: How have profit rates changed over the three years?

How do these profit rates compare with the profit rates for this line of business? Please discuss below.

Worksheet I, Continued

B. Profit Rate With Pollution Control Costs

PRPR = EWPR ÷ R

Where:

PRPR =	Profit rate with pollution control costs
EWPR =	Before-tax earnings with pollution control costs
R =	Revenues

	2010	
EWPR [Worksheet H, (7)]	-$10,721,530	(4)
R [Worksheet H, (1)]	$16,839	(5)
PRPR [(4)/(5)]	-636.71	(6)

Considerations:

What is the percentage change in the profit rate due to pollution control costs? (PRPR - PRT)/PRT × 100

0%

How does the profit rate with pollution control compare to the profit rate of this line of business?

Worksheet J

Calculation of the Current Ratio

CR = CA ÷ CL

Where:	CR =	Current ratio
	CA =	Current assets (the sum of inventories, prepaid expenses, and accounts receivable)
	CL =	Current liabilities (the sum of accounts payable, accrued expenses, taxes, and the current portion of long-term debt)

	Three Most Recently Completed Fiscal Years			
	2010	2009	2008	
CA	$6,594,956	$11,324,093	$22,139,292	(1)
CL	$2,699,595	$1,582,320	$2,435,104	(2)
CR [(1)/(2)]	2.44	7.16	9.09	(3)

Considerations:

Is the most recent year typical of the three years? ☐ Yes ☑ No

If not, do you want to use an earlier year for the analysis? ☐ No, use 2010 ☑ Yes, use 2009 ☐ Yes, use 2008

Is the current ratio (3) greater than 2.0?

Yes

How does the current ratio (3) compare with the current ratios for other firms in this line of business?

Worksheet K

Calculation of Beaver's Ratio

BR = CF ÷ TD

Where:

BR = Beaver's Ratio
CF = Cash flow
TD = Total debt

	Three Most Recently Completed Fiscal Years			
	2010	2009	2008	
Cash flow:				
Net income after taxes	-$10,669,530	-$9,379,987	-$10,768,116	(1)
Depreciation	$1,022,413	$1,022,902	$1,023,135	(2)
CF [(1) + (2)]	-$9,647,117	-$8,357,085	-$9,744,981	(3)
Total debt:				
Current debt	$0	$0	$0	(4)
Long-term debt	$0	$0	$0	(5)
Total debt [(4) + (5)]	$0	$0	$0	(6)
Beaver's Ratio:				
BR [(3)/(6)]	0.00	0.00	0.00	(7)

Considerations:

Is the most recent year typical of the three years? ☑ Yes ☐ No

If not, do you want to use an earlier year for the analysis? ☑ No, use 2010 ☐ Yes, use 2009 ☐ Yes, use 2008

Is the Beaver's Ratio for this discharger greater than 0.2?

No

Is the Beaver's Ratio for this discharger less than 0.15?

Yes

Is the Beaver's Ratio for this discharger between 0.2 and 0.15?

No

How does this ratio compare with the Beaver's Ratio for other firms in the same business?

Worksheet L

Debt to Equity Ratio

DER = LTL ÷ OE

Where:		
	DER =	Debt/equity ratio
	LTL =	Long-term liabilities (long-term debt such as bonds, debentures, and bank debt, and all other noncurrent liabilities such as deferred income taxes)
	OE =	Owner equity (the difference between total assets and total liabilities, including contributed or paid in capital and retained earnings)

	Three Most Recently Completed Fiscal Years			
	2010	2009	2008	
LTL	$414,601	$394,899	$376,233	(1)
OE	$12,625,002	$18,499,606	$26,922,547	(2)
DER [(1)/(2)]	0.03	0.02	0.01	(3)

Considerations:

Is the most recent year typical of the three years?	☐ Yes	☑ No	
If not, do you want to use an earlier year for the analysis?	☐ No, use 2010	☑ Yes, use 2009	☐ Yes, use 2008

How does the debt to equity ratio (3) compare with the ratio for firms in the same business?

Company Name	Annual Pollution Control Costs	Primary Measure	Secondary Measures		
		Profit Test	Current Ratio	Beaver's Ratio	Debt/Equity Ratio
Mines Management Inc.	$52,000	Without Pollution Control Costs			
		-633.62	7.16	0.00	0.02

NAICS Mining Sectors					
Million $	2010				
	Q1	Q2	Q3	Q4	Average
Long term debt	$ 37,781	$ 32,339	$ 35,321	$ 39,916	
	$ 128,684	$ 118,749	$ 126,750	$ 135,330	
All other noncurrent liabilities	$ 107,191	$ 104,388	$ 109,927	$ 114,237	
Total noncurrent liabilities	$ 273,656	$ 255,476	$ 271,998	$ 289,483	
Total current liabilities	$ 71,074	$ 72,510	$ 72,061	$ 74,672	
Total liabilities	$ 344,730	$ 327,986	$ 344,059	$ 364,155	
Stockholders' equity	$ 366,434	$ 359,002	$ 373,253	$ 390,941	
Total liabilities and stockholders' equity	$ 711,164	$ 686,988	$ 717,312	$ 755,096	
Debt/Equity Ratio	0.75	0.71	0.73	0.74	0.73
Income before income taxes -- proportion of net sales	0.3326	0.2358	0.2789	0.1409	0.25
Total current assets to total current liabilities (current ratio)	1.39	1.28	1.37	1.39	1.36
Income after income taxes	$ 13,105	$ 9,530	$ 12,262	$ 7,102	
Depreciation, depletion, and amortization of property, plant, and equipment	$ 10,475	$ 10,012	$ 10,278	$ 10,798	
Cash flow	$ 23,580	$ 19,542	$ 22,540	$ 17,900	
	$ 3,540	$ 3,867	$ 3,377	$ 3,524	
	$ 1,187	$ 1,267	$ 789	$ 943	
Current debt	$ 1,893	$ 2,426	$ 1,975	$ 1,032	
	$ 3,778	$ 5,027	$ 4,416	$ 3,683	
Total current debt	$ 10,398	$ 12,587	$ 10,557	$ 9,182	
Long-term debt	$ 166,465	$ 151,088	$ 162,071	$ 175,246	
Total debt	$ 176,863	$ 163,675	$ 172,628	$ 184,428	

Beaver's Ratio	0.13	0.12	0.13	0.10	0.12
Other liabilities	$ 28,791	$ 28,045	$ 29,940	$ 31,663	
	$ 107,191	$ 104,388	$ 109,927	$ 114,237	
	$ 29,570	$ 29,494	$ 30,148	$ 32,980	
	$ 2,315	$ 2,384	$ 1,415	$ 846	
Total liabilities	$ 344,730	$ 327,986	$ 344,058	$ 364,154	